Claims:

1. Apparatus for controlling the flow of a gas between a process region and an exhaust port in a semiconductor substrate processing chamber, comprising:

at least one restrictor plate supported within the semiconductor processing chamber and adapted to at least partially circumscribe a substrate support pedestal, the restrictor plate adapted to control the flow of at least one gas flowing between the process region and the exhaust port.

2. The apparatus of claim 1, further comprising:

a base adapted to be coupled to a bottom of the processing chamber; and

a support ring coupled to the base in a vertically spaced apart orientation, wherein the at least one restrictor plate is coupled to the support ring.

3. The apparatus of claim 1, wherein the at least one restrictor plate is configured to be laterally spaced apart from the substrate support pedestal and an interior wall of the processing chamber.

4. The apparatus of claim 3, further comprising:

a plurality of support legs coupled between the base and the support ring.

5. The apparatus of claim 4, wherein the support legs retain the supporting ring in a non-parallel orientation with respect to a plane defined by a substrate support surface of the substrate support pedestal.

6. The apparatus of claim 1, wherein the at least one restrictor plate is one restrictor plate having an annular shape which substantially surrounds the substrate support pedestal.

7. The apparatus of claim 6, wherein the at least one restrictor plate has a width that is wider at one portion of the at least one restrictor plate than at another portion of the at least one restrictor plate.

8. The apparatus of claim 7, wherein the portion having the wider width is adapted for positioning proximate the exhaust port.

9. The apparatus of claim 1, wherein the at least one restrictor plate further comprises a plurality of restrictor plates, wherein each restrictor plate abuts at least one other restrictor plate.

10. A semiconductor substrate processing system, comprising:

a processing chamber;

a substrate support pedestal disposed in the chamber;

a gas inlet formed in the chamber above the pedestal for supplying a process gas into a process region above the support pedestal;

an exhaust port formed in a wall of the chamber; and

at least one restrictor plate supported within the semiconductor processing chamber and at least partially circumscribing the substrate support pedestal, the restrictor plate adapted to control the flow of at least one gas flowing between the process region and the exhaust port.

11. The system of claim 10, further comprising:

a base adapted to be coupled to a bottom of the processing chamber; and

a support ring coupled to the base in a vertically spaced apart orientation, wherein the at least one restrictor plate is coupled to the support ring.

12. The system of claim 11, further comprising:

a plurality of support legs coupled between the base and the support ring.

13. The system of claim 12, wherein the support legs retain the supporting ring non-parallel with respect to a plane defined by a substrate support surface of the substrate support pedestal.

14. The system of claim 10, wherein the at least one restrictor plate is a plurality of restrictor plates having an arcuate shape.

15. The system of claim 14, wherein the plurality of restrictor plates substantially surround the substrate support pedestal.

16. The system of claim 15, wherein at least a portion of an outer edge of the plurality of restrictor plates substantially closes a gap defined between the outer edge and an inner wall of the chamber proximate the exhaust port.

17. The system of claim 10, wherein the at least one restrictor plate is one restrictor plate.

18. The system of claim 17, wherein the one restrictor plate has an annular shape which substantially surrounds the substrate support pedestal.

19. The system of claim 18, wherein the one restrictor plate has a width that is wider at one portion of the one restrictor plate than at another portion of the one restrictor plate.

20. The system of claim 19, wherein the portion having the wider width is adapted for positioning proximate the exhaust port.

21. The system of claim 20, wherein at least a portion of an outer edge of the one restrictor plate substantially closes a gap defined between the outer edge and an inner wall of the chamber along one section proximate the exhaust port.

22. The system of claim 10, wherein the at least one restrictor plate is one restrictor plate having an annular shape which completely surrounds the substrate support pedestal and a width that is wider at one portion of the one restrictor plate than at another portion of the one restrictor plate, and wherein a portion of an outer edge of the one restrictor plate contacts an inner wall of the chamber in a location at least proximate the exhaust port.